# Tamil Nadu Accident and Emergency care Initiative (TAEI)

## Introduction

Tamil Nadu alone accounts 10.7% of road traffic accident deaths in India. During 2016, Tamil Nadu accounted for 17,311 which is 12% higher as compared to 2015. So, to reduce the response time after the accident and to use the golden hour efficiently, Government of Tamil Nadu launched an innovative program "Tamil Nadu Accident and Emergency care Initiative (TAEI)" in January 2018.

## Implementation of the Practice

- The objective of the initiative was to reduce deaths caused by stroke, myocardial infarction, trauma (includes road traffic accidents), burns, poison, pediatric emergencies and, other life-threatening conditions, the first hour after the accident is the golden hour.
- TAEI used the following model to respond to the emergency cases

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| Pre-hospital care | Reduction in response time through technology | Concept of emergency room | Emergency care centres on high RTA prone stretches |

*Pre-hospital care:*

"108" Ambulance Service is being operated 24x7 in Tamil Nadu free of charge as a Public Private Partnership with GVK EMRI through a single Toll-Free number. Each ambulance has one fully trained Emergency Medical Technician (EMT) who provides pre-hospital care to the victim and a pilot (driver).

*Reduction in response time through technology:*

All the ambulances have a GPS device that is integrated with the 108 Emergency Response Centre. Currently, the calls to 108 Emergency Response Centre records details about the caller's district, taluk, and village and nearby landmark given verbally by the caller. In a state of panic, giving exact location details becomes difficult. Under these circumstances, the new mobile application for android mobile enables the 108 Emergency Response Centre Officer to view the caller's geographic location precisely and locate the ambulance through GPS.

A new mobile application has been designed to work even without an internet connection (data / GPRS). This application uses DTMF technology to determine the callers' location without an internet connection. This special feature is an initiative by the Government of Tamil Nadu to enable even the rural and tribal population with feeble mobile network coverage to have access to its 108 Emergency Response Service. To begin with, five Emergency Response Officers would have DTMF enabled the system to receive calls from this mobile app without an internet connection. This application has been developed in collaboration with IIT Madras.

All the 108 ambulance pilots have been provided with android phone and a special android mobile application has been designed to reach the caller location and to take the patients to the nearest hospitals through the shortest route and avoiding the traffic.

*Concept of the emergency room:*

The concept of an emergency room is devised to provide immediate emergency care to an RTA victim, within the golden hour without waiting for an Accident Register entry. 72 hospitals

have been identified for standardization of the Emergency Room. A system of Triage is done based on the criticality of the victim and colour is assigned, (RED/YELLOW/GREEN). Red denotes highly critical which is located near the triage room.

*Emergency care centres on high RTA prone stretches:*

Emergency care centres are established on high accident-prone zone to stabilize the patients with in 20 to 45 minutes and to move them to higher institution. Functions of ECC are as follows:

- Triaging and Reassuring patients
- RSI (Rapid Sequence Intubation)
- Cardiac Resuscitation
- Fluid Resuscitation
- Pain Management
- Bleeding Control, wound care

- TAEI developed a hub and spoke model with the existing 72 hospitals in the state and brought trauma care under one umbrella in addition to ST Elevated Myocardial Infarction (STEMI) and Stroke Care and Rapid Intervention with Plasminogen Activator and Thrombectomy (SCRIPT).
- Key stakeholders involved are- Government of Tamil Nadu, NHM and IIT Madras (for App development)
- Technology used includes ambulance locater app, caller geographic location capture app using GPS, caller geographic location capture app using DTMF, 108 Pilot navigation app, spatial mapping of medical facilities algorithm.
- Infrastructure:
  - In STEMI, there are 18 hubs that have facilities like CCU and Cath Labs, with treatment available for thrombolysis, angiogram and, angioplasty. STEMI has 154 spokes with CCU facility with treatment available for thrombolysis.
  - In SCRIPT, there are 23 hubs which have facilities like CT scan, Cath Labs, and Neurosurgery with treatment available for thrombolysis, thrombectomy, conservative management/ surgical management for hemorrhagic stroke patients. STEMI has 55 spokes with CT scan with treatment available for thrombolysis and, conservative management for hemorrhagic stroke patients.
  - Level 1, 2, 3 trauma centres are to be established in various medical college hospitals, District headquartered medical hospitals and other government hospitals
  - The State Planning Commission has recommended for Point of Care Testing (POCT) in 25 centers at a cost of Rs. 277.50 Lakhs for funding of innovative schemes under Tamil Nadu Innovations Initiative (TANII)

**Results of the practice**

This program reduced the monthly trauma mortality rate of Rajiv Gandhi Government General Hospital, Chennai from 8.27% to 2.71% and non- trauma mortality has been reduced by 2%. More than 70,000 lives have been saved annually.

**Conclusion**

This program can be implemented with some technology investment and administrational change in the hospital. This model shows a very promising impact and increases the efficiency of government hospitals towards emergency cases.

**Further Readings**

i. *http://www.nrhmtn.gov.in/gos/GoMsNo_179_18.pdf*
ii. *https://www.taeionline.com/*